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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/829,706	04/10/2001	Marc Mahy	XP-0	1776
21013	7590	11/04/2004	EXAMINER	
AGFA CORPORATION LAW & PATENT DEPARTMENT 200 BALLARDVALE STREET WILMINGTON, MA 01887			MENBERU, BENIYAM	
			ART UNIT	PAPER NUMBER
			2626	

DATE MAILED: 11/04/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/829,706

Applicant(s)

MAHY, MARC

Examiner

Beniyam Menberu

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 10 April 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-11 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-11 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☒ None of:
- 1) ☒ Certified copies of the priority documents have been received.
 - 2) ☐ Certified copies of the priority documents have been received in Application No. _____.
 - 3) ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Priority

1. Acknowledgment is made of applicant's claim for foreign priority based on an application filed in Germany on October 31, 2000. It is noted, however, that applicant has not filed a certified copy of the EPO 00123727.0 application as required by 35 U.S.C. 119(b).
2. Acknowledgment is made of applicant's claim for foreign priority based on an application filed in Germany on April 10, 2000. It is noted, however, that applicant has not filed a certified copy of the EPO 00201298.7 application as required by 35 U.S.C. 119(b).

Specification

3. The disclosure is objected to because of the following informalities:

On page 6, line 34, the term "ff." is not definite as to its meaning.

Appropriate correction is required.

Claim Rejections - 35 USC § 112

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.
5. Claim 3 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

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6. A broad range or limitation together with a narrow range or limitation that falls within the broad range or limitation (in the same claim) is considered indefinite, since the resulting claim does not clearly set forth the metes and bounds of the patent protection desired. Note the explanation given by the Board of Patent Appeals and Interferences in *Ex parte Wu*, 10 USPQ2d 2031, 2033 (Bd. Pat. App. & Inter. 1989), as to where broad language is followed by "such as" and then narrow language. The Board stated that this can render a claim indefinite by raising a question or doubt as to whether the feature introduced by such language is (a) merely exemplary of the remainder of the claim, and therefore not required, or (b) a required feature of the claims. Note also, for example, the decisions of *Ex parte Steigewald*, 131 USPQ 74 (Bd. App. 1961); *Ex parte Hall*, 83 USPQ 38 (Bd. App. 1948); and *Ex parte Hasche*, 86 USPQ 481 (Bd. App. 1949). In the present instance, claim 3 recites the broad recitation "color tolerance is at most ten units of CIELAB ΔE color distance", and the claim also recites "more preferably at most five units" which is the narrower statement of the range/limitation.

Claim Rejections - 35 USC § 102

7. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless --

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or

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(2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

8. Claim 1 is rejected under 35 U.S.C. 102(e) as being anticipated by U.S.

Patent No. 6480299 to Drakopoulos et al.

Regarding claim 1, Drakopoulos et al disclose a method for generating a printer model (column 7, lines 2-4), the printer model comprising: a plurality of colorant points, each colorant point having colorant values in colorant space (column 14, lines 34-37); and for each colorant point a corresponding color point, said color point having color values in color space (column 14, lines 34-37); the method comprising the steps of: obtaining a set of initial colorant points and corresponding color points (column 16, lines 21-25); reducing said set of initial colorant points by removing at least one selected colorant point, for which the corresponding selected color point is within a specified color tolerance predictable by a predicted color point obtained from color points corresponding to colorant points neighboring said selected colorant point (Drakopoulos et al disclose a method for optimizing characterization of printers whereby redundant points are removed in the area where gamut of printer behaves linearly. Linear region implies that predicted value will be very close to actual value, thus color tolerance will be low in these regions. (column 16, lines 25-30)).

Claim Rejections - 35 USC § 103

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

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(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

10. Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 6480299 to Drakopoulos et al in view of U.S. Patent No. 5933578 to Van de Capelle et al.

Regarding claim 2, Drakopoulos et al teach all the limitations of claim 1. Drakopolous et al disclose a method of removing selected colorant point. However Drakopoulos et al does not disclose a method according to claim 1, further comprising the steps of: determining a CIELAB ΔE color distance between said selected color point and said predicted color point; removing said selected colorant point if said determined CIELAB ΔE color distance is smaller than said specified color tolerance.

Van de Capelle et al disclose a method comprising the steps of: determining a CIELAB ΔE color distance between said selected color point and said predicted color point (column 22, lines 14-20).

Drakopoulos and Van de Capelle are combinable because they are in the similar problem area of color printing.

At the time of the invention, it would have been obvious to a person of ordinary skill in the art to combine the method of calculating color distance as taught by Van de Capelle in the system of Drakopoulos et al to implement an accurate and efficient color printer characterization method.

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The motivation to combine the reference is clear because accuracy of color prediction is determined using the method of color distance as taught by Van de Capelle.

11. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 6480299 to Drakopoulos et al in view of U.S. Patent No. 5933578 to Van de Capelle et al further in view of U.S. Patent No. 6791716 to Buhr et al.

Regarding claim 3, Drakopoulos et al in view of Van de Capelle et al teach all the limitations of claim 2. However Drakopoulos et al in view of Van de Capelle et al does not disclose a method according to claim 2 wherein said specified color tolerance is at most ten units of CIELAB ΔE color distance, more preferably at most five units, most preferably at most two units.

Buhr et al disclose a color image processor wherein said specified color tolerance is at most ten units of CIELAB ΔE color distance, more preferably at most five units, most preferably at most two units (column 11, lines 35-40).

Drakopoulos et al in view of Van de Capelle and Buhr et al are combinable because they are in the similar problem area of color printing.

At the time of the invention, it would have been obvious to a person of ordinary skill in the art to combine the ΔE color distance requirements of Buhr et al into the combined system of Drakopoulos et al in view of Van de Capelle to implement an accurate color conversion for color printing.

The motivation to combine the reference is clear because Buhr et al teach that the ΔE color distance requirements is needed for color accuracy (column 11, lines 33-43).

12. Claims 4 and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 6480299 to Drakopoulos et al in view of U.S. Patent Application Publication No. 2003/0147088 A1 to Kulkarni.

Regarding claim 4, Drakopoulos et al teach all the limitations of claim 1. However Drakopoulos et al does not disclose a method according to claim 1, further comprising the steps of: defining a colorant domain in colorant space; dividing said colorant domain into a plurality of non-overlapping cells, wherein a union of said plurality of non-overlapping cells constitutes said colorant domain and wherein said initial colorant points are located at corner points of said plurality of non-overlapping cells.

Kulkarni discloses a method according to claim 1, further comprising the steps of: defining a colorant domain in colorant space (page 3, paragraph 36; Figure 4); dividing said colorant domain into a plurality of non-overlapping cells, wherein a union of said plurality of non-overlapping cells constitutes said colorant domain and wherein said initial colorant points are located at corner points of said plurality of non-overlapping cells (page 4, paragraph 40, lines 8-20).

Drakopoulos et al and Kulkarni are combinable because they are in the similar problem area of color printer characterization.

At the time of the invention, it would have been obvious to a person of

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ordinary skill in the art to combine colorant domain division as taught by Kulkarni into the system of Drakopoulos et al to implement a method of color printer characterization.

The motivation to combine the reference is clear because it is necessary to subdivide the colorant domain into cells to generate a mapping between points on the domain located on corners of cells with points in the color space.

Regarding claim 6, Drakopoulos et al in view of Kulkarni teach all the limitations of claim 4. Further Drakopoulos et al in view of Kulkarni disclose a method according to claim 4, further comprising the step of enlarging the set of initial colorant points by adding a colorant point at one of said corner points of said plurality of non-overlapping cells (column 16, lines 27-30).

13. Claims 5 and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 6480299 to Drakopoulos et al in view of U.S. Patent Application Publication No. 2003/0147088 A1 to Kulkarni further in view of U.S. Patent No. 6023351 to Newman.

Regarding claim 5, Drakopoulos et al in view of Kulkarni teach all the limitations of claim 4. However Drakopoulos et al in view of Kulkarni does not disclose a method according to the preceding claim, further comprising the steps of: selecting out of said plurality of non-overlapping cells a plurality of cells having as a selected corner point said selected colorant point; predicting the color values at said selected corner point by using color values corresponding to corner points of said plurality of selected cells excluding said selected corner point.

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Newman discloses a method according to the preceding claim, further comprising the steps of: selecting out of said plurality of non-overlapping cells a plurality of cells having as a selected corner point said selected colorant point (Newman discloses a method for generating lookup table entries at grid points (column 7, lines 62-67; column 8, lines 1-16).); predicting the color values at said selected corner point by using color values corresponding to corner points of said plurality of selected cells excluding said selected corner point (column 8, lines 1-16).

Drakopoulos et al in view of Kulkarni and Newman are combinable because they are in the similar problem area of color printing characterization.

At the time of the invention, it would have been obvious to a person of ordinary skill in the art to combine the method of predicting color values as taught by Newman with the method of Drakopoulos et al in view of Kulkarni to implement an efficient method for color printer characterization.

The motivation to combine the reference is clear because if a color grid point does not have a color value it would be necessary to interpolate the color value using neighboring grid points as taught by Newman.

Regarding claim 7, Drakopoulos et al in view of Kulkarni further in view of Newman teach all the limitations of claim 5. Further Drakopoulos et al in view of Kulkarni disclose a method according to claim 5, further comprising the step of enlarging the set of initial colorant points by adding a colorant point at one of said corner points of said plurality of non-overlapping cells (column 16, lines 27-30).

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14. Claims 8, 9, 10, and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 6480299 to Drakopoulos et al in view of U.S. Patent No. 6023351 to Newman further in view of U.S. Patent No. 6791716 to Buhr et al.

Regarding claim 8, Drakopoulos et al discloses a color target for characterizing a printing device, said color target consisting of a plurality of color patches located in colorant space on grid lines forming a regular grid (column 7, lines 59-62; column 8, lines 12-15); wherein each color patch has first measured color values defining a first measured color point in color space corresponding to said first colorant point in colorant space (column 13, lines 50-55). Further Drakopoulos et al teach that for each colorant point, selected out of said first and second colorant points, a corresponding predicted color point is determined by using said first measured color points corresponding to first colorant points neighboring said selected colorant point on the regular grid so that for each color patch, the color distance between said corresponding predicted color point and said first measured color point is larger than a specified color tolerance (Drakopoulos et al teach that in non-linear regions more points are used implying that points in these regions have predicted values far from measured values (column 21, lines 31-40, lines 50-53; Figure 16).); and for each selected second colorant point, the color distance between said corresponding predicted color point and a second measured color point is within said specified color tolerance (Drakopoulos et al teach that in linear regions less

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points are used implying that points in these regions have predicted values very close to measured values (column 21, lines 50-53, lines 59-65.);

wherein said second measured color point is defined by second color values, measured on a patch printed by the printing device when addressed by colorant values of said selected second colorant point (column 13, lines 50-55).

However Drakopoulos et al does not disclose a grid wherein first intersection points corresponding to said color patches and located at first colorant points in colorant space; and second intersection points without corresponding color patches and located at second colorant points in colorant space. Further Drakopoulos et al does not disclose a color distance defined in said color space.

Buhr et al disclose a color distance defined in said color space (column 13, lines 30-36).

Newman discloses disclose a grid wherein first intersection points corresponding to said color patches and located at first colorant points in colorant space; and second intersection points without corresponding color patches and located at second colorant points in colorant space (Newman discloses a lookup table with grid points in first color space wherein some grid points do not have corresponding values in second color space (column 2, lines 37-46)).

Drakopoulos et al and Buhr et al and Newman are combinable because they are in the similar problem area of color printer characterization.

At the time of the invention, it would have been obvious to a person of ordinary skill in the art to combine color distance taught by Buhr et al and the grid

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system for color conversion taught by Newman in the system of Drakopoulos et al to implement an efficient color printer characterization.

The motivation to combine the reference is clear because Buhr et al disclose a method for calculating color error which can be used to determine linear regions of color map as taught by Drakopoulos et al and Newman teaches a method of using grid points for generation of color conversion which is useful in implementing the color conversion used in the system of Drakopoulos et al.

Regarding claim 9, Drakopoulos et al in view of Buhr et al further in view of Newman teach all the limitations of claim 8. Further Buhr et al disclose a color target according to claim 8 wherein said color distance is CIELAB ΔE color distance (column 13, lines 30-36).

Regarding claim 10, Drakopoulos et al in view of Buhr et al further in view of Newman teach all the limitations of claim 9. Further Buhr et al disclose a color target according to claim 9 wherein said specified color tolerance equals five units of CIELAB AE color distance (column 11, lines 35-40).

Regarding claim 11, Drakopoulos et al in view of Buhr et al further in view of Newman teach all the limitations of claim 9. Further Buhr et al disclose a color target according to claim 9 wherein said specified color tolerance equals two units of CIELAB AE color distance (column 11, lines 35-40).

Other Prior Art Cited

15. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

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U.S. Patent No. 5299291 to Ruetz discloses out-of-gamut color printer.

U.S. Patent No. 6072589 to Rozzi discloses a method for efficient printer characterization.

U.S. Patent No. 5739927 to Balasubramanian discloses color printer with refinement.

U.S. Patent No. 6035058 to Savakis et al discloses method of dropout colors.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Beniyam Menberu whose telephone number is (703) 306-3441. The examiner can normally be reached on 8:00AM-4:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kimberly Williams can be reached on (703) 305-4863. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.


Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the customer service office whose telephone number is (703) 306-5631. The group receptionist number for TC 2600 is (703) 305-4700.

Patent Examiner

Beniyam Menberu

BM

10/28/2004


KIMBERLY WILLIAMS
SUPERVISORY PATENT EXAMINER